

ORAL 12: Velogenic Newcastle disease virus takes advantage of transmission ability capabilities to control suppress lentogenic virus during coinfection

Haijin, Liu^{1,3}; SD Almeida, Renata^{1,3}; Gil, Patricia^{1,3}; Albina, Emmanuel^{1,2}

¹CIRAD, UMR CMAEE, F-34398 Montpellier, France; ²CIRAD, UMR CMAEE, F-97170 Petit-Bourg, Guadeloupe, France; ³INRA, UMR1309 CMAEE, F-34398 Montpellier, France

Keywords: Newcastle disease virus, Transmission, Competition

Since the first Newcastle disease virus (NDV) isolated in 1920s, many other strains have been successfully isolated. Most of these strains are velogenic or at least having a virulent-like fusion protein's cleavage sites. Newcastle disease vaccines were developed several decades ago and since have been used extensively worldwide. This continued vaccination with "old" vaccine strains is thought to drive viral evolution and foster the emergence of virulent strains. Another possibility is the better fitness of virulent strains for transmission and amplification in the targets species that makes lentogenic strains less frequent in the field. In order to test whether the virulent NDV strains take advantages of their transmission capabilities to suppress the nonvirulent strains, reverse genetics was used to generate one velogenic and one lentogenic NDV strains with the same genetic background and with EGFP and RFP markers, respectively. These viruses were used to individually infect or co-infect BHK-21 cells. Both strains could persistently infect the cells and showed similar ability of propagation over 15-16 cell passages. However, when co-infected, the velogenic strain takes control on the lentogenic strain that gradually disappeared until the 10th passage. This competition could partially explain why most isolated NDV strains are velogenic.



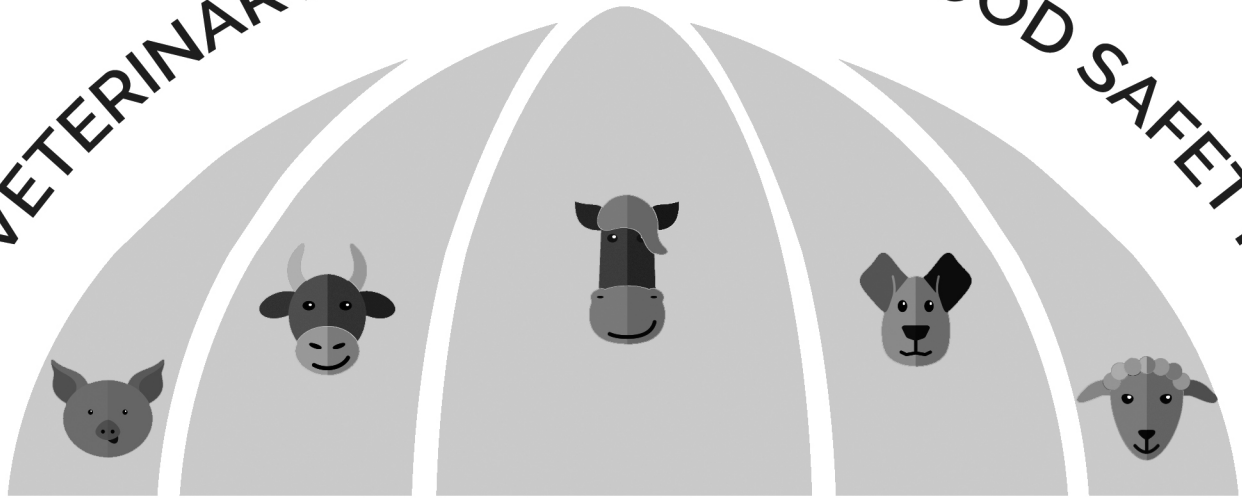
▶ PROGRAMME
& ABSTRACTS

EPIZONE
10th Annual Meeting

**GOING
VIRAL**

27-29 September 2016
MADRID, SPAIN

VETERINARY DIAGNOSTICS & FOOD SAFETY



INGENASA



SCIENCE, EXPERIENCE, VALUE

We are a biotech company fully aligned with the concept of "one world one health". Specifically we cover those processes that contribute to improve ANIMAL HEALTH and FOOD SAFETY, developing diagnostic tools useful in (1) the epidemiological control of animal infectious diseases (2) improve the animal welfare and (3) ensure quality food.

www.ingenasa.com

Committed to livestock productivity

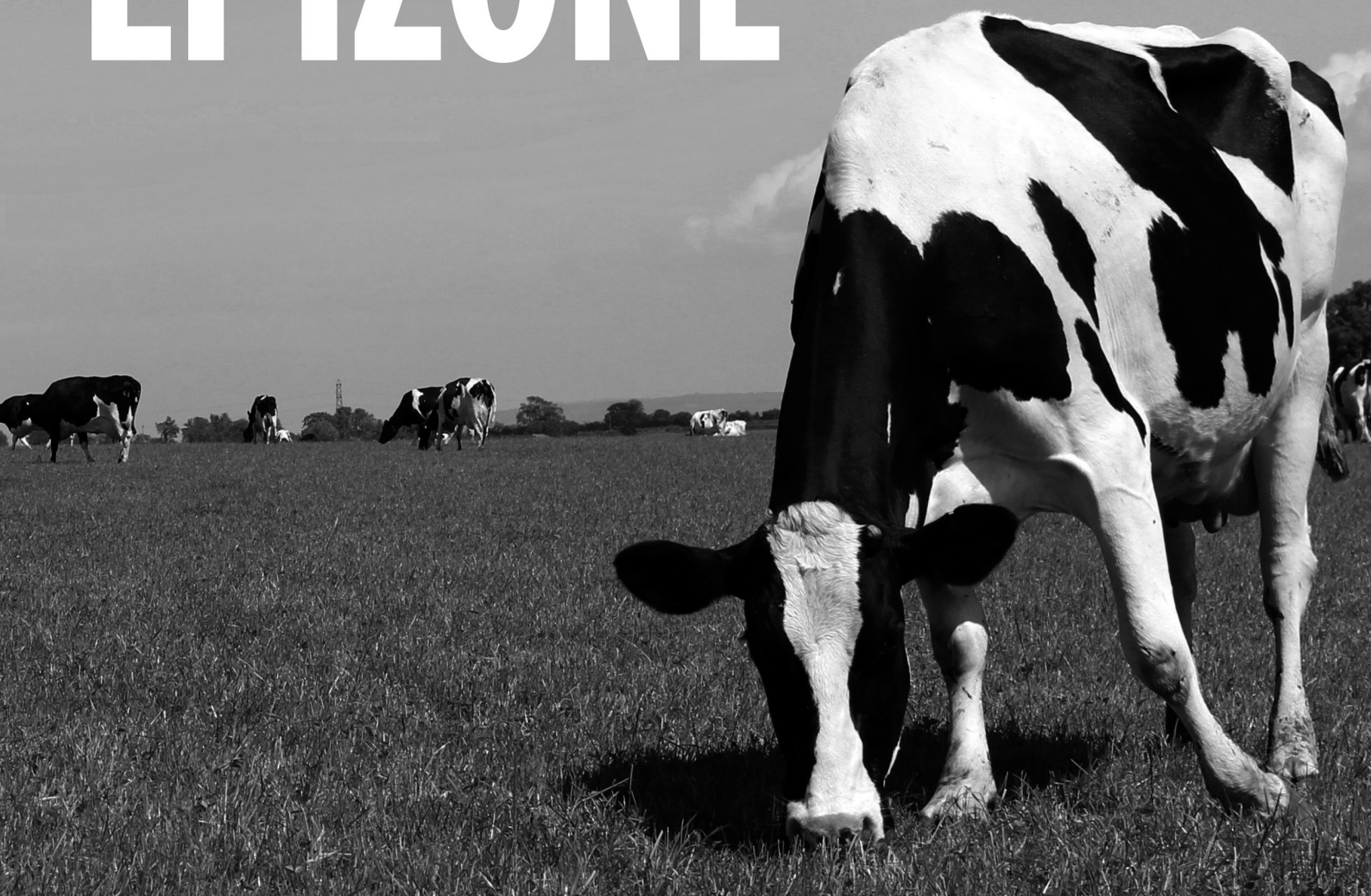
Passionate about people



Merial,
a leading global provider
of animal health solutions



ZOETIS SUPPORTS EPIZONE



FOR ANIMALS. FOR HEALTH. FOR YOU.

zoetis

Index

5	SPONSORS
6	WELCOME
7	ACKNOWLEDGEMENTS
8	CONGRESS COMMITTEES
9	KEYNOTE SPEAKERS
19	KEYNOTES LECTURES
20	PROGRAMME
28	YOUNG EPIZONE PROGRAMME
29	PARALLEL SESSIONS: ORAL PRESENTATIONS (ABSTRACTS)
89	POSTER PRESENTATIONS (ABSTRACTS)
111	POSTERS
165	LAST MINUTE POSTERS
167	LIST OF PARTICIPANTS
173	LAST MINUTE MODIFICATIONS

Sponsors

GOLD SPONSOR

INGENASA

C/ Hermanos García Noblejas, 39
28037 Madrid, Spain
Phone.: +34 91 368 0501
ingenasa@ingenasa.com

INGENASA

SILVER SPONSOR

MERIAL

2, Avenue Pont Pasteur
69007 Lyon
France
amanda.evans@merial.com



**VETERINARY
PUBLIC HEALTH**

SILVER SPONSOR

ZOETIS MANUFACTURING & RESEARCH SPAIN, S.L.

Carretera Camprodon s/n Finca "La Riba"
17813 Vall de Bianya, Girona, Spain
www.zoetis.es

zoetis

OTHER SPONSORS

IDVET

310, rue Louis Pasteur
34790 Grabels, France
info@id-vet.com

ID.vet
Innovative Diagnostics

ROCHE

Avda. de la Generalitat, 171-173
08174 Sant Cugat del Vallès
Barcelona, Spain
luis.brandi@roche.com



LABORATORIOS HIPRA, S.A

Avda. la Selva, 135
17170 Amer, Girona, Spain
Phone.: +34 972 43 06 60
hipra@hipra.com / www.hipra.com



The Reference
in Prevention
for Animal Health

CZ VETERINARIA

Polígono La Relva, Torneiros s/n
36400 Porriño, Pontevedra, Spain
Phone.: +34 986 33 04 00
www.czveterinaria.com

:CZV
CZ VETERINARIA

YOUNG EPIZONE SPONSORS

CULTEK, S.L.U

Avda. Cardenal Herrera Oria, 63, 1ª planta
28034 Madrid, Spain
cultek@cultek.com

Cultek
Your partner in Life Sciences



Welcome 10th Annual Meeting EPIZONE “Going Viral”

It is a great honour and a privilege for me to give you all our warmest welcome to the Xth Annual Meeting of EPIZONE, the first to be celebrated in Spain. INIA-CISA, as the host institution, has been fully committed on this challenge from the beginning, and we do hope that the final result will be satisfactory for participants, sponsors and organizers. We wish to thank specially to them, as this event could not be possible without any of these essential parts. The financial support from sponsors, the availability and contributions from keynote speakers, the high scientific level of oral and poster presentations from participants and, at the end, curious, active and interested assistants, will contribute to the success of the meeting. From the organizing committee I want also to thank the EPIZONE secretariat and coordinator for their continuous help and implication in the effort. Finally, my gratitude to the people at the local and international scientific and organizing committees that have been working together very hard to yield a balanced, wide-scoped and intense (maybe too intense?) programme. Special thanks to Jovita Fernandez Piñero, who has been in charge of many tasks, and has fulfilled a brilliant labour. And will not forget about the enthusiastic Young Epizone people; thank you for your work and for organizing such a well-designed session.

Under the general title of “Going Viral”, and from a *One Health* perspective, we have outlined three concentric circles defining the main topics:

Topic I: Animal Health in a changing World, dealing with global threats for animal health.

Topic II: Threats at the European border, paying attention to diseases in the neighbouring areas.

Topic III: Current challenges inside Europe, where the main diseases affecting the European countries will be discussed.

As in previous EPIZONE meetings, diagnostics, intervention strategies, epidemiology and surveillance, risk analysis and some other aspects will be approached by recognized experts in specific sessions. Many diseases which are familiar to us will receive attention, from Foot and Mouth Disease to West Nile Virus Disease or the more recent episodes by Lumpy Skin Disease, Pest des Petits Ruminants and some others. African Swine Fever and Bluetongue have been the most “popular” diseases among contributors, this revealing their current relevance.

I hope that the efforts of contributors, sponsors, participants and organizers will provide an opportunity for the “epizootic community” to work together, to plan new initiatives, to interact and to share a good time in Madrid.

Victor Briones

Acknowledgements

We are very grateful to the following companies for sponsoring the 10th Annual EPIZONE meeting:

- ▶ **Ingenasa** gold sponsor
www.ingenasa.eu
- ▶ **Merial** silver sponsor
www.merial.com
- ▶ **Zoetis** silver sponsor
www.zoetis.com
- ▶ **Idvet**
www.id-vet.com
- ▶ **Roche**
www.roche.com
- ▶ **Hipra**
www.hipra.com
- ▶ **CZ Veterinaria**
www.czveterinaria.com
- ▶ **Cultek**
www.cultek.com

We are also grateful to the following Spanish Organizations for their special support:

**National Institute for the Agricultural
and food Research and Technology (INIA)**

**Spanish Technology Platform
for Animal Health (Vet+i)**

Congress Committees

Local scientific and organizing committees (INIA-CISA):

- ▶ Victor Briones, Director, head of both local committees
- ▶ Jovita Fernández-Pinero
- ▶ Maria Luisa Arias
- ▶ Miguel Ángel Jiménez-Clavero
- ▶ Ana de la Torre
- ▶ Fernando Esperon
- ▶ Javier Ortego
- ▶ Noemí Sevilla
- ▶ Alejandro Brun

International scientific committee:

- ▶ Victor Briones (INIA-CISA, Spain)
- ▶ Stephan Zientara (ANSES, France)
- ▶ Ana Moreno (IZSLER, Italy)
- ▶ Martin Beer (FLI, Germany)
- ▶ Linda Dixon (Pirbright, UK)
- ▶ Anette Botner (DTU, Denmark)
- ▶ Thierry Van der Berg (CODA-CERVA, Belgium)
- ▶ José Manuel Sánchez-Vizcaíno (UCM, Spain)
- ▶ Wim Van der Poel (CVI-WUR, The Netherlands)

EPIZONE organizing committee:

- ▶ Manon Swanenburg
- ▶ Margriet Vedder
- ▶ Wim Van der Poel



EPIZONE European Research Group (ERG) is the international network of veterinary research institutes working on epizootic animal diseases including those which may have zoonotic potential. It plays a key role in research on prevention, detection and control of animal diseases and zoonoses in order to reduce the risks and harm to animal health and the risks to public health in the EU and beyond.



Contact EPIZONE:
Phone: +31 (0) 320 238 883
E-mail: epizone.cvi@wur.nl
www.epizone-eu.net



GOBIERNO
DE ESPAÑA

MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD



Host Institution:
Centro de Investigación
en Sanidad Animal
www.inia.es

INGENASA